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AUTHOR	Coleman, Peter
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ABSTRACT

This paper proposes that a more flexible approach to the development of teaching groups, accompanied by the necessary changes in staff and facility utilization, would help solve problems arising from declining enrollments in elementary schools. Such problems presently occur in many elementary schools in Western Canada. The problems of educational planners in dealing with declining enrollments are examined in terms of school organization, staff utilization, and the utilization of facilities. Proposals especially appropriate for elementary schools with less than 150 students in eight grades are illustrated in four models for classroom grouping. Two models assume that teachers can develop teachable groups and a variety of activities; that students can benefit from extensive individualization of curriculums and changeable groupings; and that school facilities can be modified to allow for a variety of groupings. Two other models are more traditional, suitable for schools whose physical structures are not easily changed. Implementation of these proposals could improve the quality of education in areas of declining enrollment, while keeping costs down. (Author)

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SCHOOL DIVISION PLANNING IN AN ERA OF DECLINING ENROLLMENTS

PETER COLEMAN
DIRECTOR OF EDUCATIONAL SERVICES

Additional copies available from:

The Manitoba Association of School Trustees
Room 216 - 1120 Grant Avenue
Winnipeg, Manitoba
R3M 2A6
Telephone:452-3143

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SCHOOL DIVISION PLANNING IN AN ERA OF DECLINING ENROLLMENTS

Peter Coleman

ABSTRACT

This paper proposed that a more flexible approach to the development of teaching groups, accompanied by the necessary changes in staff and facility utilization, would help solve problems arising from declining enrollment in elementary schools. Such problems, presently occur in many elementary schools in Western Canada. The problems of educational planners in dealing with declining enrollments are examined in terms of school organization, staff utilization and the utilization of facilities.

Traditional bases for classroom grouping in elementary schools include age, ability, program and handicap. There is no evidence that any of these groupings promotes achievement. Recent research on the teachable group has confirmed that the "fit" between a group of students and the teachers is an important basis for grouping. It did not improve student achievement but did improve student grades as well as student and teacher satisfaction with class sessions. Proposals especially appropriate for elementary schools with less than 150 students in 8 grades are illustrated in four models for classroom grouping. Two Models assume that teachers can develop teachable groups and a variety of activities; that students can benefit from extensive individualization of curricula and changeable groupings; and that school facilities can be modified so as to allow a variety of groupings. Two other Models are more traditional and suitable for schools whose physical structures are not easily changed.

Changes in staff utilization would necessarily follow innovations in grouping and would include a greater emphasis on professional activities, with clerical duties being delegated to teacher aides. There would also be a greater emphasis on cooperation in planning instruction, including team teaching. Studies have shown that team teaching in open-space schools offers advantages for both students and teachers. The four models suggested would allow for a more economic pupil-teacher ratio, thereby controlling costs to some degree.

Changes in facilities would be relatively minor, making use of present buildings by removing partition walls. In addition, well-equipped libraries with special emphasis on resource centers and audio-visual aids are essential to the high level of individualization of instruction involved in this type of classroom grouping.

Implementation of these proposals might improve the quality of education in areas of declining enrollment, while keeping costs down.

Declining enrollments present problems to planners at the school division level which can be considered in three categories: school organization; staff utilization; and the utilization of facilities. A brief examination of the general problem precedes detailed treatment of each category.

Declining enrollments in the elementary school characterize the whole of Canada at present, with the exception of the Yukon and the Northwest Territories. Between 1970-1971 and 1974-1975 enrollments in kindergarten and elementary classes are expected to fall by 8.68%. (Statistics Canada, 1972) The problem seems particularly acute in Manitoba and Saskatchewan, where elementary school enrollments are declining somewhat more rapidly than for Canada as a whole, and unevenly across the provinces. In Manitoba, there is some evidence that enrollments in the metropolitan Winnipeg area are stable; hence the decline will be felt primarily in rural divisions, which enroll about half of Manitoba's elementary school students. For these divisions, the decline will be nearer 16% per year then. In Saskatchewan the trend seems similar. (Scharf, 1972)

These declining enrollments come to the attention of school administrators and school boards in several ways: sparse populations spread over a wide area result in heavy transportation costs per student; age-ranges in classes become larger as several grade-levels are amalgamated into a single classroom; teacher workloads rise with increasing heterogeneity of classes, and consequently pupil-teacher ratios tend to fall; the provision of special programs becomes more and more difficult and costly; finally, it may become difficult or impossible to keep some small schools open at all.

The general solution to these problems has been to close small schools and redistribute their populations so as to improve the viability of the remaining schools. However, this increases the transportation problem, and there is clearly a limitation to the amount of time elementary school students can spend on school buses.

The search for other solutions to the problem will certainly result in different answers for different school districts and divisions. Some of the possibilities can be suggested. The general emphasis here is on the opportunities presented by small schools, rather than the difficulties, and on rather simple and immediately useful suggestions. It is argued that in general the reduction in quantity of education offered can allow boards to improve the quality, while holding costs stable.

The first section here, on classroom grouping, is basic and will be dealt with at length. If some solutions to the problem of classroom grouping in small elementary schools can be given, changes in the utilization of staff and facilities will readily fall into place.

The following diagram is intended to represent a standard elementary school, large enough for one grade per classroom, and a reduced elementary school in which enrollment cannot allow one grade per classroom. School 2 here is an actual example. Notice that the way in which the problem is presented tends to predetermine the solution. With the image of the "proper" school in mind, administrators attempt to shape the "inadequate" school to match it. There is simply no satisfactory solution, in those terms. A more fundamental question must be asked: why group? The answer is, traditionally, for "teachability". Thus the real question for the administrators attempting to cope with classroom groupings in a small school is "what constitutes a teachable group in a small elementary school?"

	SCHOOL 1			SCHOOL 2		
Grade	Students		Staff	Students		Staff
	Grade	Class		Grade	Class	
I	30	30	A	9	17	A
II	30	30	B	8		
III	30	30	C	10	18	B
IV	30	30	D	8		
V	30	30	E	9	20	C
VI	30	30	F	11		
VII	30	30	G	8	21	D
VIII	30	30	H	13		
			Principal			
TOTALS	240	240	9	76	76	4
		PTR 26.7 : 1			PTR 19 : 1	

The traditional bases for classroom grouping in elementary schools are well-known: age (grade level); ability (homogeneous grouping); program (enriched or remedial classes); handicapped (special classes). All have recently been challenged. The philosophy of individualized instruction calls the first two into question, and those concerned with special education now emphasize the difficulties created by segregating children with special needs into separate groups. (Roberts, 1970)

The research evidence on the various kinds of grouping is fairly conclusive. Most examined is ability grouping. Many hundreds of studies in several different countries have shown that grouping by ability has no effect on achievement, but some varied effects on the self-concept of students. (Thelen, 1967: p. 29) The reason for these results seems to be that while the grouping represents an educational

opportunity, no changes are made in curricula and teaching methods to meet the needs of the group, and to produce improved achievement. Various other possible groupings based on student characteristics have also been examined. In essence, there is no evidence that they are useful in promoting achievement.

Some recent research on the teachable group has had somewhat more positive results. The notion that effective teaching and learning is based on interaction between students and teachers gave rise to the view that the important basis for grouping was the "fit" between a group of students and the teachers, and this view was confirmed by a very extensive and thorough experiment. (Thelen, 1965) This form of grouping did not improve student achievement as measured by objective tests, but did improve student grades, as assigned by the teachers, as well as the satisfaction of the students and the teachers with the class sessions.

Thelen and his associates suggest two simple ways of developing "teachable groups". The first requires a two-week shake-down period, in which students are assigned randomly to classes, and teachers rotate amongst classes. During this period teachers make note of the students they would prefer to have in their classes. At the end of the shake-down period, classes are assigned on the basis of teacher choices. A second plan is even simpler. At the end of the school year, teachers confer together, and assign students to classes on the basis of their expectations about match between the students and teachers.

These proposals are based on secondary schools and may be more valid in that context than they are in the context of the elementary school. What is proposed here seems more appropriate for small elementary schools, but not drastically different from Thelen's notion of the teachable group, and how to develop it. The various suggestions which follow make use of the same school used in the first diagram.

The first model suggested, Model A, has the following characteristics:

1. Grades I and II are kept separate, and used as introductory years to school life.

2. All subsequent grades are treated as a single class, from which teachers develop working groups for various activities.

3. Extensive cooperative planning by teachers, both to develop activities and appropriate groups, is required.

4. A teacher aide is employed, half time, at an annual cost of $2,000, (calculated at $2.50 per hour, 20 hours a week, 40 weeks a year.)

5. The model assumes a) that teachers can develop teachable groups, and a variety of activities; b) that students can cope with and benefit from extensive individualization of curricula, and changeable grouping; and c) that the school facilities can be modified to allow groupings both larger and smaller than traditional size.

Model B in the diagram below shares many of those characteristics, but eliminates one and four. Thus it assumes that even young students can readily work in changing groupings. Given exposure to kindergarten, this may not be unreasonable.

SCHOOL 2

MODEL A				MODEL B		
Students			Staff	Students		Staff
Grade	Class			Grade	Class	
9	17		A	9		
8				8		
10				10		A
8	59			8	76	
9			B	9		B
11				11		
8			C	8		C
13				13		
			Aide ($\frac{1}{2}$)			
TOTALS						
76	76		$3\frac{1}{2}$	76	76	3
	PTR 21.7 : 1				PTR 25.3 : 1	

MODEL C

Students Grade	Class	Staff
9, 8, 10	27	A (Aide ($\frac{1}{2}$))
8, 9, 11	49	B
8, 13		C
TOTALS 76	76	$3\frac{1}{2}$

PTR 21.7 : 1

MODEL D

Students Grade	Class	Staff
9, 8, 10	27	A
8, 9, 11	28	B
8, 13	21	C
76	76	Aide ($\frac{1}{2}$) $3\frac{1}{2}$

PTR 21.7 : 1

The next two suggestions are somewhat more traditional. Model C groups primary children together for all instruction, thus segregating them from the older children, who form a single class, with two teachers. The final suggestion is virtually a standard self-contained classroom arrangement, but integrates an aide. Both these suggestions could be used in schools which cannot readily be changed physically. Teachers might still be able to modify groupings, and work cooperatively, but would be much less likely to do so.

Changes in Staff Utilization

The suggestions here have several implications for staff utilization. The notion of the teachable group adopted places a good deal of additional responsibility on teachers: a far higher degree of individualization of instruction, based on careful assessment of the needs and abilities of individual students; much more carefully planned instruction, with an emphasis on cooperative planning; and a good deal more creativity and flexibility in the development of instructional activities are all implied.

In general these activities can be characterized as highly professional ones. Many teachers would agree that they should and would spend more time on such activities if clerical tasks, such as keeping attendance records, checking exercise books, handing out and collecting assignments and so on, were not so burdensome. Most of the suggestions here include the provision of an aide for such work, thus freeing teachers for the more professional activities. Thus the first change in staff utilization is a new emphasis on professional activities as opposed to routine and clerical activities.

Somewhat more important is the emphasis on cooperation in planning instruction. Recent research on team-teaching, which is almost invariably associated with open-area schools, has shown that students, teachers, and administrators are generally in favor of team-teaching, open-space schools. Additionally, careful observational studies have shown no negative results for students. Additionally, "grouping patterns, teacher behavior, and student learning activities do differ in open=space schools." (Brunetti et al., 1972: p. 87) Detailed studies by these authors have shown that teachers in open-space schools, as compared to teachers in self-contained classrooms, are far more likely to engage in professional discussion of such topics as developing objectives, grading and curriculum planning. (61%, N=110, as opposed to 21%, N=120.) They are more likely to exchange advice and evaluations on teaching (61% to 32%); to influence school policies and teaching practices (44% to 18%); to feel autonomous in teaching practices (86% to 70%); and to be satisfied with teaching as a job (46% to 28%).

The advantages to teachers of open-space schools with team-teaching arrangements are not inevitably associated with such schools; there are problem areas which are also revealed by this same review of research. In general, however, open-space schools allowing team-teaching seem to be a positive innovation from

the point of view of professional development. It should also be mentioned that such schools have shown consistently more student activity in carrying out learning tasks, and less large group instruction with the limited participation that makes possible. The major change in staff utilization implied by the suggestions here is the tendency towards more cooperative teaching, which has distinct advantages.

One further aspect of staff utilization needs discussion. One of the major problems of school divisions undergoing declines in enrollment is the economical operation of small classes. Declining enrollments tend to be associated with declining pupil-teacher ratios, with their cost implications. The four suggested models above all allow for a somewhat more economical pupil-teacher ratio than the traditional response to declining enrollments given in the first diagram.

Some simple calculations, using $10,000 as an average salary per teacher, suggest the advantages from a cost point of view of the various models. The traditional model in the first diagram, with four teachers, would cost $40,000 per year. Model A with three teachers and one aide at $2,000 would cost $32,000. Model B with three teachers at $10,000 would cost $30,000. Models C and D would cost the same as Model A. Additional facilities, or changes in facilities, may well use up, for the first year or so, the savings in salaries made possible by the various models. These models show, however, that declining enrollments are not necessarily associated with rising expenditures for instruction. The major change suggested here is a very careful control over the pupil-teacher ratio as enrollments decline.

With regard to costs, one further point can be made. In 1971, for the province as a whole, the special levy provided $215.75 per pupil. If the special levy remains at the same level, and the numbers of students enrolled declines, additional funds should be available for providing better quality services to the remaining students, given careful cost controls.

Changes in Facilities

The discussion of changes in staff utilization has suggested the need for increased reliance on team-teaching, preferably in open-space classrooms, as a general solution to the problem of declining enrollments. The changes in facilities required are relatively minor, and may well make it possible to continue the use of some small schools for several years. Hence such costs seem justified. The general pattern would be to remove partition walls between classrooms, wherever possible, to allow more extensive cooperation between teachers. The most desirable pattern for open-space schools at present seems to be a single large space which can accommodate the entire school enrollment. (American Association of School Administrators, 1971) Recent studies of building projects have demonstrated that over half of the new elementary schools under construction in many parts of North America are open-space schools, and thus that open space is not a passing fad. (Open Space, 1970)

The second major change in facilities required by the suggestion here is predicated on the very much higher level of individualization of instruction which it is anticipated would follow from the suggestions here. Such individualization often relies very heavily on instructional aids of various kinds, in particular audio-visual aids. Thus a well-equipped school library is an essential feature of such suggestions. The decline in enrollments in many small schools has made empty space available which can be used as a school resource center, and the additional funds freed by the decline in enrollments, and by the possibilities of economizing in pupil-teacher ratios, could well be used to develop adequate resource centers for the use of teachers and students. These should be primarily viewed as places for children to work in isolation or in small groups and furnished accordingly.

Conclusions & Implications

The suggestions here regarding general ways of coping with declining enrollments can readily be summarized:

A. The traditional model of the elementary school, in which one grade level, one classroom, and one teacher constitutes the class, should generally be rejected in favor of a much more flexible approach to developing teaching groups, largely based on team-teaching and open-area ideas.

B. The utilization of staff should emphasize teacher-developed groupings of students, cooperative planning of instruction for the whole school, and the use of aides to carry much of the load of routine and repetitive work so that teachers are free for highly professional activities, such as curriculum development, instructional planning, and individualized attention to students. Given careful attention to pupil-teacher ratios, such staff utilization patterns need not be as expensive as the traditional models of elementary school organization.

C. Team-teaching plans depend very heavily on open-space schools, so that school facilities must be modified to make at least some of these suggestions workable. However, modest expenditures on the removal of partition walls may have the effect of making schools usable for a number of years beyond the time when they would normally have to be closed. In addition to changes to buildings, every school in which team-teaching is to be implemented must be provided with an adequate resource center for students and teachers, with an emphasis on audio-visual materials.

These suggestions are specifically intended for small elementary schools, enrolling less than about 150 students in eight grades. Beyond that size, many other possibilities exist. Thus team-teaching in open-area schools is not advocated here as a general pattern, but as a specific response to the problem of declining enrollments in small elementary schools. However, changes of the kind suggested here have also been advocated, under the label of "informal education", for quite different, and more compelling reasons. (See NSPRA, 1972 for a brief description of a large number of "informal education" projects and techniques.)*

Implementing any of the suggestions here will require careful attention to at least four potential problem areas: 1. development of workable teaching teams; 2. development of a simple technique for organizing teachable classes; 3. hiring aides capable of assisting teachers; 4. making appropriate changes in facilities. In each of these interrelated areas, the contribution of the teachers themselves to decisions and practices to be implemented should be substantial. An implementation pattern allowing a series of gradual changes to fit circumstances and personal preferences, once the existing inertia has been disturbed, is probably desirable.

Given careful implementation, the suggestions here might contribute to making small rural elementary schools more pleasant and productive environments, for students and teachers, despite declining enrollments.

*The Centre for Teaching & Learning, at the University of North Dakota, has been active in this field. Summaries of projects sponsored by them in North Dakota school districts will be made available shortly.

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